

Amendments to the Claims:

---

4β1  
1. (currently amended) A geodesic structure comprising a plurality of hub elements, each hub element having a vertex at a first end and a hub base at a second end that is opposite said first end, an angular deficit  $\alpha$ , wherein said hub elements are randomly arranged adjacent to one another so as to form ~~said geodesic structure~~ a structure triangulated by a network of virtual struts, any one virtual strut of said network of virtual struts having a strut length and extending as a straight line between vertexes of any two adjacent hub elements.

2. (currently amended) The geodesic structure of **Claim 1** having an angle of structure, wherein said hub element is a right cylindrical cone, ~~and wherein, in an orthogonal elevational view of said hub element, said vertex connects a first hub side and a second hub side, wherein~~ having an external angle  $\theta$  that is formed between said ~~second hub side and a first imaginary straight line extending straight from a surface of said first hub side cone beyond said vertex, and wherein~~ having an internal angle  $\beta$  that is formed between a deficit line and a second imaginary line that extends vertically from said vertex toward said base ~~and either one of said first hub side or said second hub side;~~

wherein said angle of structure is equal to an average value of said external angle  $\theta$  of all said hub elements.

3. (canceled)

4. (canceled)

5. (canceled)

6. (currently amended) The geodesic structure according to **Claim 4**, wherein 2, wherein said plurality of hub elements includes more than one group of hub elements and said hub elements within each group are identical in size, and wherein said angle of structure is equal to an average value of said external angle  $\theta$  of all of said hub elements in said geodesic structure.

4b1  
cont  
7. (currently amended) The geodesic structure according to **Claim 4** **Claim 6**, wherein said plurality includes two groups of hub elements ~~and said hub elements~~, a first group having a first deficit angle  $\alpha$  and a second group having a second deficit angle  $\alpha$  that is different magnitude from said first deficit angle, and wherein said hub elements of said two groups are arranged in an alternating pattern.

8. (currently amended) The geodesic structure according to **Claim 1** further comprising a virtual strut having a strut length, said virtual strut extending as a straight line between any two adjacent vertexes of said hub elements, wherein said virtual strut is formed along a single-plane curvature that extends between said any two adjacent hub elements.

9. (unchanged) The geodesic structure according to **Claim 1**, wherein said structure is a semi-spherical dome.

10. (unchanged) The geodesic structure according to **Claim 1**, wherein said structure is a sphere.

11. (canceled)

12. (canceled)

13. (canceled)

14. (canceled)

15. (currently amended) The geodesic structure according to **Claim 14**, wherein said ~~cone~~ **1**, wherein said hub element is fabricated of sheet material from the group consisting of metals, paper fiber products, wood fiber products, plastics, woven materials, pressed materials, and coated materials.

UP!  
cont 16. (currently amended) The geodesic structure according to ~~Claim 15~~ **Claim 1**, wherein said hub elements are arranged in an overlapping fashion so as to provide a closed surface.

17. (canceled)

18. (canceled)

19. (canceled)

20. (canceled)

21. (canceled)

22. (canceled)

23. (canceled)

24. (new) The geodesic structure according to claim 1, wherein said strut length of said virtual struts is a variable strut length, wherein said strut length of a first strut between a first hub element and a second hub element is a first length and said strut length of a second strut between said first hub element and a third hub element is a second length that is different from said first length, and wherein said structure is self-adjusting by means of said variable strut length.

25. (new) The geodesic structure according to claim 2, wherein said hub element is a truncated right cylindrical cone.

UPH  
cont 26. (new) The geodesic structure according to claim 25, wherein said hub elements are arranged with said vertex pointing inward toward a center of said geodesic structure.

27. (new) The geodesic structure according to claim 25 further comprising a skin, wherein said hub element has an external side that faces away from said geodesic structure, and wherein said skin is arranged across said external side so as to form a continuous cover over said plurality of hub elements.

28. (new) A method of constructing said geodesic structure of claim 1, said method comprising the steps of:

- a) determining a desired radius (R) of said geodesic structure;
- b) determining a necessary number of said plurality of hub elements;
- c) arranging said hub elements in a random manner adjacent one another and fixing said hub elements in place; and

d) creating an opening in said geodesic structure for purposes of ingress and egress.

29. (new) The method of claim 28, wherein said step of determining a necessary number of said plurality of hub elements includes the steps of:

a) selecting a desired dome angle  $\theta$  of said geodesic structure;

b) calculating an internal angle  $\beta$ ;

CB!  
const  
c) calculating said angular deficit  $\alpha$  of said hub element by calculating (360 degrees) x (1 - sin  $\beta$ ); and

d) calculating the number of said hub elements by calculating (360 degrees)/ $\alpha$ .

30. (new) The method of claim 29, further comprising the steps of

e) determining a strut length (SL) of said hub element, wherein  $SL = (\sin \theta) (R)$ ;

f) determining a minimum hub length ( $L_{MIN}$ ) of said hub element, wherein ( $L_{MIN}$ ) =  $SL/2$ ; and

g) calculating an actual hub length ( $L_{ACTUAL}$ ) of said hub element.

31. (new) The method of claim 30, wherein said step of determining a minimum hub length includes calculating an amount of overlap between each said adjacent hub element.